

ABSTRACT

In a method of producing a low dielectric constant polymer, a thermosetting monomer is provided, wherein the thermosetting monomer has a cage compound or aryl core structure, and a plurality of arms that are covalently bound to the cage compound or core structure. In a subsequent
5 step, the thermosetting monomer is incorporated into a polymer to form the low dielectric constant polymer, wherein the incorporation into the polymer comprises a chemical reaction of a triple bond that is located in at least one of the arms. Contemplated cage compounds and core structures include adamantane, diamantane, silicon, a phenyl group and a sexiphenylene group, while preferred arms
10 include an arylene, a branched arylene, and an arylene ether. The thermosetting monomers may advantageously be employed to produce low-k dielectric material in electronic devices, and the dielectric constant of the polymer can be controlled by varying the overall length of the arms.